

**Solar 101 Webinar  
December 1, 2010  
Questions and Answers**

**General Questions**

**Q: What does APS stand for?**

A: Alternative Portfolio Standard

**Q: How do we go about hiring a consultant to figure out what is possible at our site?**

A: Consultant services can be procured under MGL Chap 30B. There is also a statewide contract number is PRF-46 that provides a list of consultants that one could use.

**Q: Does a town need to be a designated Green Community to be eligible for the incentives you mentioned?**

A: No, the solar carve-out and the Commonwealth Solar II program are open to communities even if they are not designated Green Communities.

**Q: How does PPA energy generation 'count' toward the green Communities 20% energy reduction requirement?**

A: PPA energy generation does NOT count toward the Green Communities Criteria 3 requirement to establish a baseline and reduce energy consumption from that baseline by 20%.

**Q: Do municipalities need to adopt new zoning bylaws for ground-mounted solar projects, or can they be built by-right under state law?**

A: A municipal zoning bylaw/ordinance addressing solar energy facilities is advisable, but a solar energy project can be permitted and built in a community without one. This is the case because Massachusetts General Laws [Chapter 40A, Section 3](#) provides the following exemption from zoning for solar energy facilities:

*No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.*

Thus, the legislature has afforded solar energy systems special status and municipalities are actually somewhat constrained in the use of their zoning authority to regulate them. They must ensure that such regulations are necessary to protect public health, safety, or welfare. Exactly what is necessary is a matter of opinion. No lawsuit challenging a local bylaw or ordinance regulating solar energy systems and citing the exemption has ever been heard. Hence no judicial interpretation of the limits of the exemption is available.

In view of M.G.L. Ch 40A § 3, local zoning specifically allowing for the as-of-right construction of solar energy systems – such as those commonly installed on top of, or on the lot, of a home or business—is not, strictly speaking, necessary. Solar energy facilities generally can't be prohibited as landowners are allowed to have them pursuant to the exemption. In those communities lacking a bylaw/ordinance regulating solar facilities, a landowner would simply apply for a building permit to construct a solar energy project. However, this is far from ideal as it places both the applicant and the building inspector in a tenuous position. The landowner would be uncertain as to what size and type of solar energy facility is allowed and how that facility should be designed and located. The building inspector must interpret and apply the exemption language and local zoning not intended to site solar energy systems.

In order to address these types of ambiguities and to advance other municipal interests, many communities have zoning regulations in place that pertain to exempt uses, including solar facilities. DOER strongly encourages communities to adopt zoning bylaws/ordinances regulating exempt solar facilities that are justified based on, and very carefully crafted to protect, public health, safety, or welfare. In fact, because large scale solar facilities, such as those intended for commercial electricity generation, are most likely to impact public health, safety, or welfare, [the Green Communities Division](#) of the Department of Energy Resources has already provided a [model bylaw/ordinance for Large-Scale \(>250 kW DC\) Ground-Mounted Solar Photovoltaic Installations](#). The Department is also presently working on new model zoning to assist communities interested in reasonably regulating smaller scale solar energy facilities.

**Q: Can you talk about using micro inverters to address shading?**

A: A micro inverter is a device that converts direct current (DC) from a single solar module to alternating current (AC). Normally, solar modules are connected in a series string that leads to an inverter at the end of the circuit. However, these will only work as well as the weakest one. If there is even the tiniest of shading on one panel, this will impact the whole output of a series-connected system. Each module is independent with a micro inverter, so it does not have the same shading concerns, but the best idea is to place your system so there is no shading.

**Q: If the solar site were visible from a highway, would solar glare be an issue?**

A: Potential glare would be studied at the site, but there are definitely examples of PV in highway right-of-ways. There is an array in Oregon along a highway interchange, and solar PV can be found on the roads of Germany. The picture below is a road near the Munich airport.



**Net-Metering Questions**

**Q: Does the grid pay a rate for excess net-metered power or is it only a kWh credit on the bill?**

A: Based on the excess generation at the end of the month the utility multiplies the kWh of excess generation times the net-metering rate for that project and resulting in a credit in dollars, not kWh. That credit can be carried forward month to month

**Q: My town has a municipal electric company and they claim that they are not able to set up net metering. How does our town get over this hurdle?**

The town needs to work with its Municipal Light Plant in order to set up net-metering. The net metering legislation and regulations apply only to investor-owned utilities that come under the jurisdiction of the Department of Public Utilities. Municipal Light Plants are independent and not subject to these rules. However, Municipal Light Plants are not prohibited from establishing their own net-metering rules. The Concord Municipal Light Plant offers net metering and has offered to provide information to other munis.

**Q: Does net metering have a cap (100 MWs?), how does this tie-in with the 400 MW cap for RECS, and do you expect it to increase?**

A: The net-metering cap was recently increased to 3%, with 1% for residential, commercial and other non-public projects and 2% for public/municipal projects. These percentages apply to the peak load within their Massachusetts service territory for the regulated distribution company. The net metering cap is different from the RPS Solar Carve-out goal of installing 400 MW of solar across the state. There will be a number of years before we hit the Solar Carve-out goal; if, in time, the net-metering cap becomes an issue to the development of solar it will probably be taken up by the legislature.

**Q: Can the host owner allocate all of its net metering credits to another entity in that load zone?**

A: When you sign up your project for net-metering, you fill out a form called Schedule Z. On this form you can allocate different accounts in your load zone that you want the net metering credits to be applied to. You can allocate all of them to one account or split them in whole percentage points to up to 100 accounts.

## **PPA and Procurement Questions**

### **Q: Why wouldn't municipalities purchasing PV systems be eligible for tax credits?**

A: The simple answer is that municipalities do not pay taxes, so they can't get any tax credits.

### **Q: Under a PPA, is the cost of electricity locked in for the entire length of the term of the agreement?**

A: The PPA will have a cost of electricity that will either be a flat cost over the length of the contract or it will have a small annual escalator.

### **Q: What would a good PPA cost per kWh hour be - what factors enter in?**

A: This is completely determined by the entity entering into the PPA. A good price would be one where you are comfortable with the savings you are getting per kWh compared to your current price of electricity. You would also want to take into consideration the end of contract provisions (what happens to the PV array on your property at the end of the contract) and the annual cost escalation, if there is one.

### **Q: Most companies that offer PPA's seem to have a size limit of 100kW or more. Are PPA's available for smaller systems in the 30 kW range?**

A: We have heard of some companies offering PPAs for projects less than 100 kW. Another way to get a small PV project built is to combine that project with larger sites in town that have a combined total of greater than 100 kW and attract PPA providers to your solicitation.

### **Q: If using a PPA, who gets the money associated with SRECs? The municipality or the PPA provider?**

A: The ownership of the SRECs and the associated revenue is determined in the contract between the parties. Typically with a PPA, the SRECs are retained by the PPA provider and the revenue from the SRECs help the developer offer a better PPA price for the municipality. However, if a municipality wanted to own the SRECs that could be negotiated.

### **Q: What are the public procurement requirements for a renewable generating source. For example, if a school wants to install a solar array (using a PPA or not using a PPA), what public procurement requirements apply to the school authority?**

A: For constructing a solar PV system on a school building, that is or is not part of a PPA, you could use either MGL Chapter 25A or 149. For questions regarding procurement under M.G.L. c. 25A, contact Eileen McHugh of the Green Communities Division at 617-626-7305 or [Eileen.mchugh@state.ma.us](mailto:Eileen.mchugh@state.ma.us). For questions regarding procurement under M.G.L. c. 149, call the Attorney General's office, Deborah Anderson at 617-727-2200 ext. 2371 or Brian O'Donnell at 617-727-2200 ext. 2340.

### **Q: Can you review the pros and cons of choosing procurement thru chapter 25A or 149?**

A: Each municipality must determine which procurement works best for their situation. Procurements must adhere to MA General Laws. Procurements done under MGL Ch 25A are a design-build process using either a Request for Proposal or a Request for Qualifications with no other bidding requirements. For more questions on procurement under MGL Ch 25A, please contact Eileen McHugh, [Eileen.mchugh@state.ma.us](mailto:Eileen.mchugh@state.ma.us). Procurements that secure design services separately are done under MGL Ch 149. For further question on this type of procurement please contact the AG's office, Deborah Anderson, 617-727-2200 ext 2371 or Brian O'Donnell, 617-727-2200 ext 2340. DOER is developing a Guidebook for Development of Solar PV on Landfills, and included in the guidebook will be an outline of the different procurement options available.

### **Q: What types of projects would trigger Chapter 149 procurement requirements?**

A: Chapter 149 encompasses the general public construction process. If a municipality is constructing a public works project under Chapter 149 that costs \$10,000 or more, then GL Ch 30, Section 39M is implicated. If a project costs \$5 Million or more, then a 2-part RFQ/RFP process known as the "construction management at risk delivery methods" may be used under GL Ch 149A. For specific questions on procurement under Chapter 149, call the Attorney General's office, Deborah Anderson at 617-727-2200 ext. 2371 or Brian O'Donnell at 617-727-2200 ext. 2340.

**Q: Does a PPA fall into the Mass. Gen. Laws Ch 30B, sec 1(b)(33) exemption to the Uniform Procurement Act?**

A: Yes, if you were just purchasing the energy through a PPA, then the 30B exemption applies. For questions regarding procurement under M.G.L. Ch. 30B, call the Chapter 30B line five days a week at (617) 722-8838 from 9:00 A.M. to 4:30 P.M. However, if you are developing the project (whether you intend to take possession of the asset or not), you would need to determine whether the work would fall under construction and what type – public works or buildings.

**Q: Would a PPA be exempt under MGL c 30B s (1) (b) (32) & (1) (b) (33) and therefore not require getting three estimates through a bidding process?**

A: See response above

**Q: Are there samples of PPAs that can be shared, and guidance on what to include/be concerned about. What are procurement obligations on PPA?**

A: You can contact your Regional Coordinator to learn of other municipalities you can contact that have procured Solar PV under a PPA. All procurements must adhere to MA General Laws. DOER is developing a Guidebook for Development of Solar PV on Landfills; included in the guidebook will be an outline of the different procurement options available.

**Q: Does DOER/GC offer a model RFP and/or RFQ for municipal solar PPAs?**

A: For PPA procurements done under Chapter 25 A, please contact Eileen McHugh, [Eileen.mchugh@state.ma.us](mailto:Eileen.mchugh@state.ma.us).

**Q: Will your guidebook include spreadsheets or workbooks to help municipalities decide whether purchasing a system or third party contracts make more financial sense.**

A: There is a financial calculator available at: <http://bit.ly/e8GcLv>

**Q: If our town does a PPA for our landfill, could we have a higher energy cost if the PPA partner goes bankrupt?**

A: It would depend on the provisions in the contract signed between the town and the PPA provider.

**Solar Renewable Energy Credit (SREC) Questions**

**Q: To clarify: projects funded through EECBG grants would NOT be eligible for SREC production?**

A: If the EECBG funds covered more than 67% of the installed cost of the array, then they are not eligible for SRECs.

**Q: Are SRECs available on solar arrays NOT located in MA?**

A: There are some other states that have SREC programs, including New Jersey, Pennsylvania, Maryland and others. Only projects in Massachusetts are eligible for the MA Solar Carve-out program.

**Q: If using a PPA, who gets the money associated with SRECs? The municipality or the PPA provider?**

A: The ownership of the SRECs and the associated revenue is determined in the contract between the parties. Typically with a PPA, the SRECs are retained by the PPA provider and the revenue from the SRECs help the developer offer a better PPA price for the municipality. However, if a municipality wanted to own the SRECs that could be negotiated.

**Q: Is public information available regarding who has purchased SREC's and what price they have paid?**

A: Not from the Department of Energy Resources. There are some traders and aggregators that publish the latest prices on their website. You can find a list of aggregators and traders on the solar carve-out website:

[www.mass.gov/energy/rps](http://www.mass.gov/energy/rps).

**Q: Is the income stream from SRECs recognized by banks or the bond market for financing purposes?**

A: The revenue received for an SREC generated within a qualified project's Opt-In Term is assured by the program design and the Auction mechanism to be at least \$285. Banks and other financial supporters of SREC projects will recognize and value this revenue stream as they find appropriate. DOER does not dictate or regulate these market analyses or financial transactions.

**Q: How long will SRECs be available for?**

A: Projects that are qualified before the program reaches the 400 MW cap will continue to generate SRECs until all the

opt-in terms have been honored. When the program ends, all of the projects that were originally generating SRECs will then be transferred to the RPS Class I program and generate RPS Class I RECs.

**Q: How did the Transcanada case affect the SREC regulations?**

A: The Alternative Compliance Rate (ACP) rate for that portion of a Retail Supplier's Solar Renewable Energy Credit obligations that were contractually committed or renewed prior to January 1, 2010, shall be equal to the RPS Class I ACP Rate (\$60.93 for 2010) as calculated for the applicable Compliance Year.

**PV on Landfills Questions**

**Q: When do you expect the "PV on Municipal Landfills" guidebook to be available?**

A: We expect it to be available in April.

**Q: Can you speak to the effects of landfill settling on the construction of PV arrays on closed landfills?**

A: The PV array designs submitted to MassDEP have incorporated adjustable supports to account for landfill settlement. Inspection operations need to include assessment of landfill settlement due to the stresses that could be induced in the array support system. Adjusting the supports will need to be made as required.

Additionally, it is important to identify areas of settlement prior to construction. If the landfill has been closed for significant period of time (greater than +/-15 years) most of the primary settlement may have already occurred. This will vary from landfill to landfill depending on the depth of waste, waste types and operation techniques etc. Fixing any existing settlement should reduce future maintenance/repairs.

Any proposal to repair minor settlement may be done as routine maintenance, provided that the Town reports the settlement to MassDEP and states its intent to perform repairs, and provides MassDEP with final survey (as-built) results and a summary write-up.

Any proposal to do a major settlement repair must be submitted within a Corrective Action Design (BWP SW 25) permit application since disruption of the final cover system will take place and repair details must be submitted and approved.

**Q: In what way will the PV array affect the cap on a closed landfill?**

A: If the PV array design does not call for replacement (gravel, concrete, etc.) of the existing vegetation, the PV array can shade the existing vegetation associated with landfill final cover system vegetation (grass) and cause deleterious effects. During PV array operations and maintenance, reseeding and/or additional erosion control measures may be necessary depending on the vegetation response to lower sunlight. How significant a problem this may become depends largely on the design of the PV array and the ability of the existing vegetation to handle lower sunlight.

One advantage of having post-closure use, such as PV on landfills, is that additional personnel "eyes" will be on the landfill more often than is typical for a closed landfill. Potential landfill final cover system damage can be detected early on and repairs made before they become a major problem. Additionally, the presence of more personnel may deter illegal access.

MassDEP's post-closure use permit application process is designed to ensure that the integrity of the final cover system, including drainage facilities, ponds, swales, ditches and other erosion/sedimentation controls, are maintained and that the proposed PV array construction/operations do not result in an adverse impact to public health, safety or the environment. MassDEP has developed guidance including a fact sheet entitled; "Developing Renewable Energy Facilities on Closed Landfills" (<http://www.mass.gov/dep/energy/landfill.htm>) that describes MassDEP's permit requirements and process for obtaining a post closure use permit for these activities.

The Massachusetts Department of Environmental Protection (MassDEP) and [Department of Energy Resources](#) (DOER) conducted two (2) workshops on June 17, 2009 and January 19, 2010 for municipal officials, solid waste consultants and renewable energy project developers about the unique issues surrounding the development of solar or wind installations closed landfills. Workshop presentations, available for download at

(<http://www.mass.gov/dep/energy/lfwkshop.htm>, addressed siting considerations, potential impacts on landfill caps, economic incentives currently available to minimize installation costs, and case studies of renewable energy installations on closed municipal landfills.

**Q: Are there any issues with increased runoff on landfills with solar panels?**

A: It depends, the modules are usually in rows and the water will just shed off the modules and flow into the storm water basins that were part of the original design when the landfill was closed. This would be something that should be discussed with DEP and be part of the post closure use permit.

**Q: What does DEP think of the reuse of landfills?**

A: DEP has been active in promoting renewable energy on closed landfills. DOER and DEP co-sponsored two conferences on the topic. In order to reuse your landfill, you need to get a post closure use permit from DEP. DEP is willing to sit down with municipalities and help discuss the process. If you are interested in developing your closed landfill you should reach out to your Green Communities Regional Coordinator who can set up a call or site visit between the town, DEP and other DOER staff.